



The Ampex BCC-21 Digicam Studio/Field Production Camera

The BCC-21 adds to the Digicam family the features and capabilities required for studio and mobile operation.

Features include 7" viewfinder, large lens mount for wide lens choice, viewfinder selection, intercom options, teleprompter capability, tallylight option and "studio feel".

Capabilities include four base station options; simple encoded, multicore; triax and fiber optic; automatic setup of all major parameters; diagnostics; versatile Master Setup Panel with logical "next step" button and SEC control; operational Control Panel and Paint/Match Panel with full operational and production features including unique grey paint and special paint memory.

Major Features

- A top quality studio camera with full automation capability.
- Easily convertible for EFP operation.
- The Digicam family offers total versatility. The system can be built from a basic BCC-20 to a fully automated BCC-21.
- Uses all Digicam family accessories for total flexibility in operation and production: MSP; ASU; OCP; PMP; multiple base station options.
- Incorporates all unique BCC-20 technology: SEC; microprocessor in-the-head; digital control for both operation and automatic setup.
- The SEC option ensures specification for registration, geometry and shading superior to conventional 25mm and 30mm cameras.

The BCC-21 Digicam is a member of a family of Ampex cameras. Both the BCC-21 and BCC-20 are products of years of innovative research and development. The Digicam family of high-performance cameras has been developed by Ampex and is manufactured by the company at its Cupertino, California facilities.

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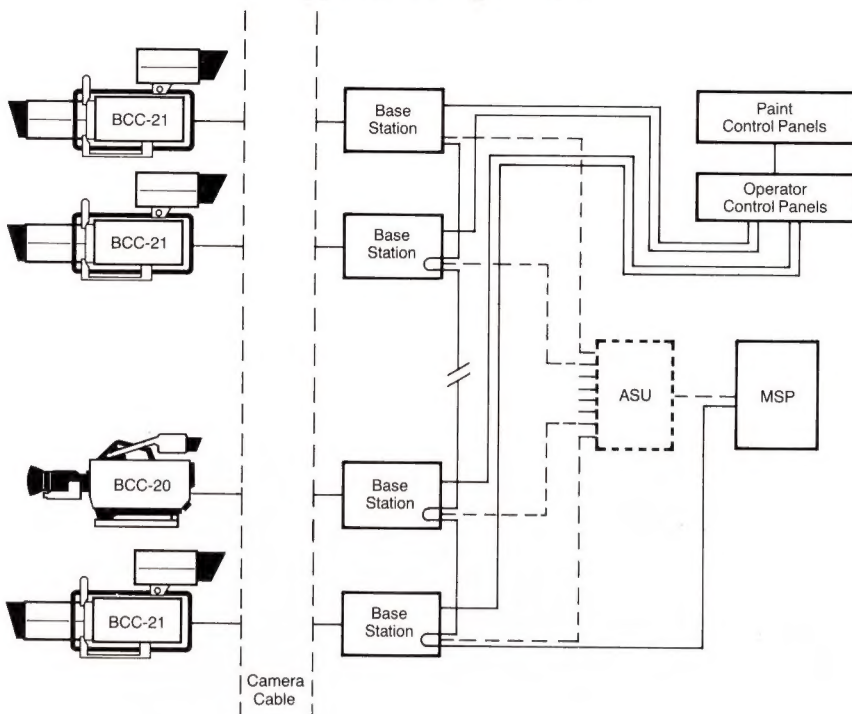
The BCC-21 gets your job done

All electrical adjustments in the BCC-21 may be performed either manually or automatically. Using the Automatic Setup Unit (ASU), multiple cameras can be automatically setup in a few minutes. The same adjustments can be made manually from the MSP.

The MSP and ASU can setup to eight BCC-21 cameras (or a mix of BCC-20s and 21s), or via an external switch, multiple groups of eight cameras. As a fixed confidence measure, the Manual Memory Update controls in the camera head allow readjustment in the field.

Full remote operational control is provided by Operator and Paint Match control panels. The MSP also offers access to all operational adjustments.

Typical Configuration



Spatial Error Correction (SEC)... a dramatic breakthrough in camera technology

Until the introduction of the BCC-20 and SEC, camera performance was limited by geometry, registration and shading errors. Registration errors result in loss of picture sharpness, as well as annoying color fringing.

The BCC-21's SEC divides the picture into 182 individual picture areas, each of which can be adjusted to minimize all of these errors, either manually or with an ASU. The MSP uses algorithms designed into the BCC-21's Z-80 microprocessor-based digital correction system to dramatically simplify and speed manual set-up of the 182 picture areas; the ASU addresses each of the 182 areas separately and provides correction for each.

For additional information about the Ampex BCC-20 Digicam, refer to the Ampex BCC-20 brochure.

BCC-21 Specifications

Camera Tubes

Rear Loading

$\frac{2}{3}$ " lead oxide (standard or diode gun) or Saticon*

Optics

f1.4 prism with bias light; dual filter wheel

Signal-to-Noise

NTSC/PAL-M 53 db,

PAL/SECAM 51 db

(Gamma and all corrections off,

200 nA Signal current in green)

Sensitivity

Full output is obtained with 200 foot candles at f4 200nA in green, 60% reflective chart.

(6fc with 12 dB added gain at f-1.4)

Registration

Digital Camera

0.05% All Zones

Geometry

0.1% All Zones

Shading (Over center 90% picture)

White — absolute and differential 1.0%

Black — absolute and differential 0.5%

*T.M. Hitachi

Resolution Modulation Depth

(Uncorrected; average green tube)

Diode Gun Plumbicon

50% @ 400 TVL

Standard Plumbicon; Leddicon; Saticon

40% @ 400 TVL

Limiting horizontal resolution at center 700 TVL

Systems

NTSC/PAL/PAL-M/SECAM

Dimensions

	Without Viewfinder	With Viewfinder
H	13½ in (34.3 cm)	21¾ in (55.3 cm)
L	24¼ in (61.6 cm)	28 in (71.2 cm)
W	18½ in (47 cm)	18½ in (47 cm)

Weight (excluding BCC-20 camera head)

55 lb (25 kg)

Temperature

Operating: -20°C to +50°C

Stable over any 10°C range

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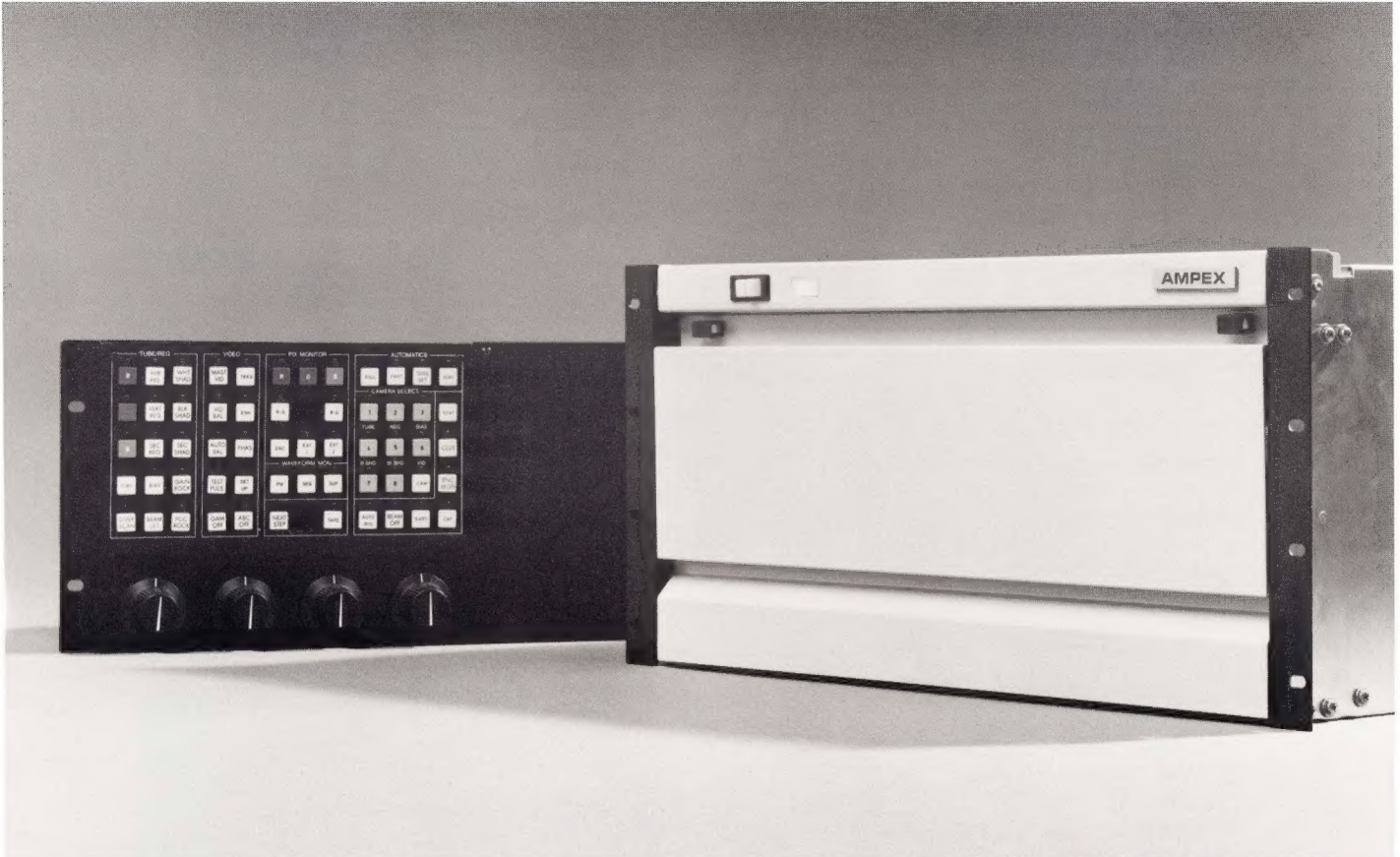
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Automatic Setup Unit (ASU) For Use in Setting Up Ampex Digital Cameras



Exceptional Operating Features

- Provides superior registration and picture quality, day-after-day.
- Can set-up to eight Ampex digital cameras using one Automatic Setup Unit (ASU) and a single Ampex Master Setup Panel (MSP) in less time and more accurately than current computers or conventional cameras.
- A sophisticated microprocessor-based system analyzes the video signal derived from the diascope in the lens to correct errors.
- The ASU system allows manual override from the MSP (Master Setup Panel) or in the camera head via a series of thumbwheels to ensure full operational flexibility.
- The Spatial Error Corrector, using a Z-80 microprocessor in the camera head, receives ASU commands and corrects errors quickly in all zones for unexcelled picture quality.
- ASU controls critical registration adjustments in camera head in 182 zones to minimize registration errors to .05% in all zones.
- Major camera functions — such as tube alignment, geometry, shading, black and white balance, and video alignment — are corrected automatically by the ASU.
- ASU incorporates a queuing capability that permits multiple cameras in any order to be automatically set-up at the same time — with no waiting.
- ASU permits quick automatic touch-up of registration or alignment at the touch of a button.
- Simplified interface can be accomplished with either a junction box for a self-contained camera or a base station for EFP and studio configurations.
- Can automatically set-up eight cameras simultaneously and then via a

simple external switcher could be allocated to additional groups of up to eight cameras.

Automatic setup and control of television cameras has become an attractive and proven technique employed by the professional TV industry during the past few years. Ampex has furthered the technology in the development and production of a family of digitally controlled cameras with a microprocessor and memory in the camera head capable of full computer control in self-contained, cable or multi-camera configurations.

Fast setup of such cameras is accomplished by the Ampex Automatic Setup Unit (ASU) — a sophisticated microprocessor-based system capable of fully or partially setting up eight digital Ampex Digicam cameras using a single ASU with one Ampex Master Setup Panel (MSP). Such a setup can be done more quickly, and with far better results than using strictly conventional approaches.

Superior Registration & Picture

The Ampex ASU guarantees superior Digicam registration and picture quality day-in and day-out. And it achieves this high performance economically. Using unique digital measurement techniques, the Ampex ASU converts video signals from the diascope pattern to digital signals. It then electronically compares these signals against an electronic pattern test chart. This lets the ASU, operating with digital commands from the MSP, measure such important adjustments as tube alignment, geometry, registration, black and white balance, shading and video alignment — automatically.

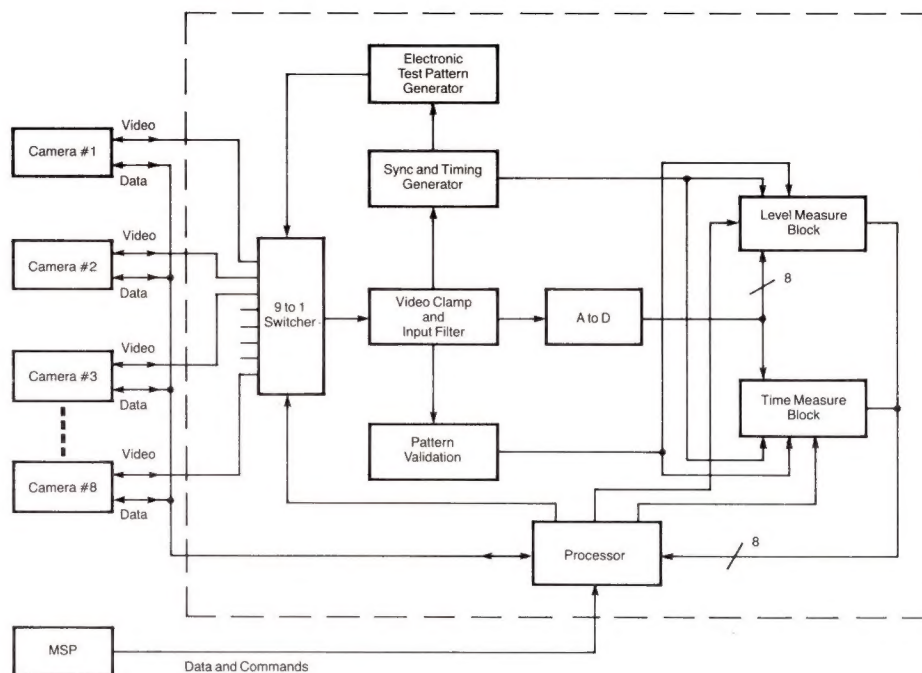
The ASU's Z-80 microprocessor then sends corrective digital commands to the camera head's Spatial Error Corrector. This facilitates rapid and accurate adjustments to geometry, shading and registration. In the case of registration, the ASU commands incredibly precise adjustments in 182 zones to .05%.

Simplified Computer Control

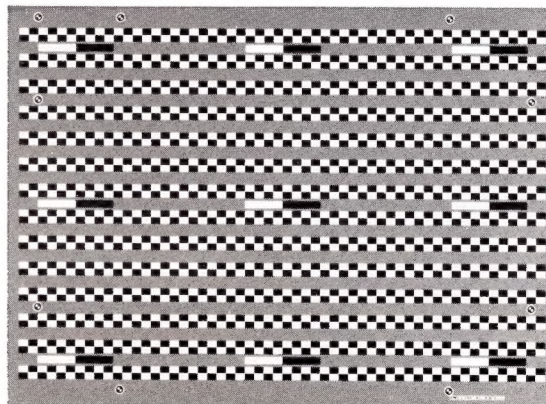
The Ampex Master Setup Panel is the main controller for the Ampex Digicam family of cameras.

It can be used alone for manual set-up or in conjunction with the ASU for automatic camera set-up. Both the MSP and ASU can handle up to eight Ampex cameras and with external switching techniques, a single ASU and MSP can automatically handle a multiple number of cameras in groups of eight. This can result in an incredible savings in both time and money.

The ASU incorporates a "queuing" feature that lets (say) Cameras 1, 3 and 5 set-up automatically at the same time. Alignment or registration can be made at the push of a button in several cameras at the same time. There's never a problem of waiting for each camera to be set-up before moving on to the next one.



Block diagram of ASU



Diascope pattern for ASU

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